

No. 2012-1309

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**UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT**

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BROADCOM CORPORATION,

*Plaintiff-Appellee,*

v.

EMULEX CORPORATION,

*Defendant-Appellant.*

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Appeal from the United States District Court for the Central District of  
California in case no. 09-CV-1058, Judge James V. Selna.

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**NONCONFIDENTIAL BRIEF OF PLAINTIFF-APPELLEE  
BROADCOM CORPORATION**

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July 26, 2012

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## CERTIFICATE OF INTEREST

Counsel for Plaintiff-Appellee Broadcom Corporation certifies the following:

1. The full name of every party or amicus represented by me is:

Broadcom Corporation.

2. The name of the real party in interest represented by me is:

Broadcom Corporation.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

There is no such corporation.

5. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

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**CONFIDENTIAL MATERIAL OMITTED**

Material has been omitted from pages 8-9, 16, 51-55, 55-56, and 59-61 of Broadcom's non-confidential brief because these pages describe and contain confidential information concerning business arrangements of the parties and third-party customers, which information is subject to a protective order entered in the district court.

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## STATEMENT OF RELATED CASES

There have been no previous appeals in this action. This is an interlocutory appeal of an injunction entered April 3, 2012. (A24971.)<sup>1</sup> On July 24, 2012, this Court (Judges Lourie, Schall, and Dyk) denied Defendant-Appellant Emulex Corporation's motion to stay the injunction pending appeal. (A25009-10.)

Proceedings in the underlying district court case, *Broadcom Corporation v. Emulex Corporation*, Nos. 09-CV-1058, 10-CV-3963 (C.D. Cal.), have continued throughout the pendency of this appeal. On June 22, 2012 the district court entered an amended permanent injunction. (A25011-19.) On June 26, 2012, Defendant-Appellant Emulex Corporation ("Emulex") amended its notice of appeal to include this amended injunction. (A25028-32.)

On July 5, 2012, following execution of a Patent License and Release Agreement, the parties stipulated to dismissal of certain allegations in the underlying district court action, which the district court entered on July 18, 2012. (A25020-27.) Of particular relevance to this appeal, the district court has dismissed Plaintiff-Appellee Broadcom Corporation's ("Broadcom") allegations of infringement of U.S. Patent No. 7,471,691 (the "'691 patent") in their entirety, and Broadcom's allegations of infringement of U.S. Patent No. 7,058,150 (the "'150 patent") insofar as they relate to Emulex's SOC 442 product. (A25020-27.) On

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<sup>1</sup> The prefix "A" refers to the Joint Appendix to be submitted by the parties.

the same day, the district court entered a Second Amended Permanent Injunction. (A25033-38.) The Second Amended Permanent Injunction remains in effect as to Emulex's BE2 and BE3 products, and as to Emulex's Lancer product for activities outside certain fields of use. (A25033-38; A25043-44.) As of the filing of this brief, Emulex has not yet amended its notice of appeal to encompass the Second Amended Permanent Injunction.

### **JURISDICTIONAL STATEMENT**

The district court had jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a). The district court granted Broadcom's request for a permanent injunction against Emulex on April 3, 2012, and modified that injunction on June 22, 2012 and July 18, 2012. This Court has jurisdiction pursuant to 28 U.S.C. §§ 1292(a)(1) and (c)(1).

## STATEMENT OF ISSUES<sup>2</sup>

(1) Whether the district court correctly granted judgment of infringement as a matter of law, when there was no dispute as to how the accused products operate, and the “half-rate architecture” of the accused products infringes claim 8 of the ’150 patent as a matter of law;

(2) Whether the district court correctly rejected Emulex’s “single reference obviousness” argument, when there was no motivation to add a “data path” to the asserted reference, when there was no reasonable expectation that Emulex’s modification of the asserted reference would be successful, and when the jury found all relevant secondary considerations favored nonobviousness;

(3) Whether the district court appropriately exercised its discretion by enjoining Emulex’s 10 gigabit Ethernet (“10GbE”) products—for which Broadcom offers a directly competing alternative—and by implementing a “Sunset Period” applicable to at least 160 products to allow Emulex’s customers time to transition to noninfringing alternatives.

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<sup>2</sup> Following a partial settlement, the parties entered into a stipulation of dismissal of Broadcom’s allegations of infringement of the ’691 patent, which are addressed in Emulex’s opening brief. (Emulex Br. 21-24, 43-51; A25020-27.) The parties’ settlement and the Second Amended Permanent Injunction also allow Emulex to sell its “InSpeed embedded Fibre Channel switches” and its “Lancer” product in certain limited fields of use. This brief therefore does not address the arguments in Emulex’s brief concerning the ’691 patent or indirect competition (Emulex Br. 52-55)—which are now moot in view of the parties’ partial settlement and stipulation.

## STATEMENT OF THE CASE

Broadcom brought this patent infringement action against its direct competitor, Emulex, in September 2009. (A18372-96.) In February 2010, Broadcom amended its complaint to allege infringement of the '150 patent that is the subject of this appeal. (A18808-56.)

The case proceeded under the Northern District of California Local Patent Rules (A25095-96), under which the parties were required to identify proposed claim terms for construction in a *Markman* hearing. Emulex proposed a total of twenty-eight terms from the '150 patent for construction, though it did not seek any construction for the term that is now the focus of its appeal—"rate corresponding to a frequency offset." (A25087-88.)

The district court conducted an eleven-day jury trial beginning on September 20, 2011. (A254.) Claims from three families of related patents were at issue in the trial—the '150 patent, the "Fibre Channel" patents (which included the '691 patent), and the "SerDes" patents (which are not at issue in this appeal).

Following the close of Emulex's case, Broadcom moved for judgment of infringement of the '150 patent as a matter of law. (A33.) Emulex responded by arguing that an accused apparatus that "sometimes but not always" embodies a claim does not infringe. (A791.) The district court rejected this argument and granted Broadcom's motion, concluding that Broadcom's expert "Dr. Stojanovic

made the prima facie case” and was not cross examined on anything other than Emulex’s “sometimes but not always” theory, and that Emulex’s expert “Dr Nikolic concede[d], at least part of the time, the device” infringes. (A792.)

Emulex’s obviousness defense on the ’150 patent went to the jury. The jury was asked to return a finding of the level of ordinary skill in the art of the ’150 patent, and it concluded that a person of ordinary skill would have “[a]t least an advanced degree (M.S. or Ph.D) in Electrical Engineering or [a] related discipline, with approximately 4 years of experience in the design of physical layer circuits.” (A238). The jury also returned a verdict finding that all of the following secondary considerations had been established:

commercial success of a product due to the merits of the claimed invention;

a long-felt, but unsolved, need for the solution provided by the claimed invention;

unsuccessful attempts by other[s] to [find] the solution that is provided by the claimed invention;

copying by others of the claimed invention;

unexpected and superior results from the claimed invention; and

acceptance by others of the claimed invention as shown by praise from others in the field or from the licensing of the claimed invention.

(A238-39.) The jury expressly rejected a proposed finding that “the claimed invention was independently invented by others before or at about the same time as the named inventor thought of it.” (A239.) Finally, the jury rendered an advisory

verdict that Emulex had failed to prove obviousness by clear and convincing evidence. (*Id.*) The jury also awarded damages for past infringement at a 3% royalty rate (though the damages were minimal, given Emulex's only recent entry into the 10GbE market at the time of trial). (A1178-81.)

Emulex repeated its "sometimes but not always" noninfringement defense in its post-trial renewed motion for judgment as a matter of law, which the district court denied. (A33-39.) On the parties' post-trial cross-motions on the issue of obviousness, the district court agreed with the jury that Emulex had not met its burden to prove obviousness. (A248.)

Broadcom then moved for permanent injunctive relief. (A2396-404.) Following thirteen additional depositions and a hearing, the district court granted Broadcom's motion, and entered a permanent injunction on April 3, 2012. (A1-9.) Emulex took no immediate action to modify or stay the injunction. Instead, it delayed more than a week after the entry of the injunction even to request that the district court enter a stay, and then almost another a week after the district court's order denying a stay to request that this Court stay the injunction pending appeal. (A5280-83; A250-03; A25127-28.) On July 24, 2012, this Court denied Emulex's motion to stay. (A25009-10.)



On June 22, 2012 the district court entered an amended permanent injunction, and Emulex correspondingly amended its notice of appeal. (A25011-19; A25028-32.)

On July 3, 2012, the parties entered into a Patent License and Release Agreement. Under the agreement, Emulex agreed to pay Broadcom \$58 million for a license to certain of the patents-in-suit in specific fields of use, including the “Fibre Channel” field in which the district court found that Broadcom and Emulex are indirect competitors. (A25130-31; A15-16.) On July 18, 2012, pursuant to the parties’ joint stipulation, the district court dismissed Broadcom’s allegations of infringement insofar as they related solely to Emulex’s Fibre Channel products, including Broadcom’s allegations related to the ’691 patent (which was previously part of this appeal and is addressed in Emulex’s brief). (A25020-27.) The agreement did not, however, grant Emulex any license for its BE2 or BE3 products, which are 10 gigabit Ethernet (“10GbE”) controllers that directly compete with Broadcom’s products.

Following the parties’ partial settlement, the district court entered a Second Amended Permanent Injunction, addressing only the ’150 patent. (A25033-38.) Emulex has not sought to stay the Second Amended Injunction.

## STATEMENT OF FACTS

### I. Broadcom, Emulex, and the 10GbE Market

Broadcom is a global leader in the field of semiconductors for wired and wireless communications. Specifically, Broadcom develops technology in three major business segments: the Ethernet market, the broadband communications product market (including cable and satellite television set-top boxes), and the mobile and wireless market (including cellular phones). (A321.) For the past fifteen years, Broadcom's core business has been in Ethernet. Broadcom was one of the first companies to offer a "10GbE" Ethernet controller—a controller that can process data at 10 gigabits per second. (A324.) Broadcom has sold and continues to sell semiconductor chips for the 10GbE controller market. (*Id.*)

Emulex also sells semiconductor chips and related products in the 10GbE controller market. As Emulex admits, Broadcom and Emulex "compete directly" in this market, and Emulex has described itself as a "substantial direct threat to Broadcom in the 10GbE Controller market." (A25134; A25142.) In fact, Emulex's senior executives have testified that Broadcom is Emulex's primary competition in this market. For example:

- [REDACTED]

- [REDACTED]
- [REDACTED]

The '150 patent allows multiple sets of so-called “Serializer-Deserializer” circuits to be combined on a single chip and, in so doing, improves performance of high communications devices, while lowering cost. This technology “enable[s] the commercial success” of 10GbE controller chips used in large-scale data centers (A752)—precisely the market in which Emulex and Broadcom directly compete.<sup>3</sup>

## **II. The '150 Patent**

The '150 patent teaches and claims a “phase interpolator” to perform high speed sampling of a signal, in a technique known as “clock and data recovery.”

### **A. Clock and Data Recovery**

Communication devices (such as 10GbE products) often must send data at very high speed. (A89(col.1 ll.18-20).) When a communication device transmits digital data (e.g., “1”s and “0”s), it typically does so in the form of a continuously

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<sup>3</sup> Emulex refers in its brief to “Fibre Channel” and “FCoE” (Fibre Channel over Ethernet) technologies. “Fibre Channel” is a separate technology from Ethernet, used in separate products. By contrast, “FCoE” is an add-on software feature that runs on 10 gigabit Ethernet chips. (A323-24.) Both Broadcom and Emulex offer directly competing FCoE products. (A2437.) Emulex’s arguments regarding competition for “Fibre Channel” business are moot in light of the parties’ partial settlement and the District Court’s dismissal of the '691 patent.

varying signal—an electromagnetic wave—in which higher voltage levels represent one of the binary states (e.g., a “1”) and lower voltage levels represent the other binary state (e.g., a “0”). (*See* A54(Fig. 4A); A93(cl.10 ll.18-30).) To extract binary data from such a waveform, the receiving device registers the voltage at specific instants in time. This process of reading a signal at the appropriate frequency is called “sampling.”

To read the electromagnetic wave at the correct frequency, circuits may use “sampling signals.” The sampling signal tells the sampler *when* to read the voltage. (A98(col.1 ll.48-55).) Chips traditionally based the sampling signals on a so-called “phase locked loop” circuit or “PLL.” (A89(col.1 ll.27-28).) A PLL is a well-known circuit that has an oscillator (similar to the quartz in a quartz watch) and a feedback loop to match the frequency of the incoming data signal.

In modern communication devices, a single chip is sometimes used to process data from multiple different signals at the same time. The circuitry that receives each different signal is called a “receive-lane,” and a single chip will often contain multiple receive-lanes. (A91(col.5 ll.26-45).) Traditionally, each receive-lane required its own PLL. Unfortunately, these separate PLLs could interfere with each other, compromising the reliability of the sampling signals. (A89(col.1 ll.37-47).)

Generating an appropriate sampling signal that specifies the precise instant to sample a data signal is critically important—particularly in devices such as 10GbE controller chips, which receive data at a frequency of over ten billion bits per second. As the '150 patent describes, sampling a data signal too early or too late (i.e., not aligned with the “peak” or “valley” of the incoming waveform) can result in erroneous determinations of whether a signal is intended to represent a “1” or a “0”. (A54(Figs. 4C-E); A93-94(col.10 l.41-col.11 l.5).) As a data signal transitions between a higher voltage representing a “1” and a lower voltage representing a “0,” it passes through a region in which data values are undefined and cannot be recovered accurately.

#### **B. The Phase Interpolator Invention**

The '150 patent describes parallel sampling circuitry that does not require a separate PLL to generate the sampling signal for each receive-lane. Instead, the '150 patent uses so-called “phase interpolators” to generate the necessary sampling signals. (A89(col.2 ll.16-26).) In this system, a master timing signal generator generates a “master timing signal,” which is then split into four “reference signals” with different phases. (A89(col.2 ll.17-26.)) Phase interpolators combine these reference signals to generate sampling signals that stay in phase with the data signal in each receive lane. (A90(col.3 ll.11-22).) To perform this combination, the phase interpolators can “rotate the interpolated phase of the sampling signal” to

bring it closer to the appropriate frequency for sampling. (A107(col.38 ll.66-67).)

Thus, phase interpolators allow a PLL to generate multiple sampling signals for multiple receive lanes, reducing the number of PLLs on the chip and therefore reducing interference. (A90(col.3 ll.30-35).)

### **C. Parallel Sampling**

Modern networks may transmit data at higher speeds than an affordable receiving circuit can sample. (A91(col.1 l.62-col.2 l.6).) One way to allow sampling to be done at a lower rate (and therefore with less expensive circuitry) is to make multiple copies of the same high-speed signal and to distribute those copies to several sampling circuits operating in parallel. (A103(col.29 l.65-col.30 l.6).) For example, the '150 patent discloses the use of four parallel data paths, each operating at one-quarter of the rate of the incoming data signal. (A104(col.31 ll.10-37).) Parallel sampling works by applying separate, staggered sampling signals to each separate sampler. (*Id.*) In a four-sampler circuit, the first sampler reads the first data bit, and ignores the next three bits. The second sampler ignores the first bit, reads the second data bit, and ignores bits three and four. And so on. In a two-sampler circuit, each sampler operates at one-half of the rate of the incoming data.

**D. Claim 8**

The district court concluded that Emulex's BE2, BE3, and Lancer products infringe claim 8 of the '150 patent as a matter of law. (A33-39.)

Claim 8 recites:

A communication device configured to receive multiple serial data signals, comprising:

a master timing generator adapted to generate a master timing signal;

multiple receive-lanes each configured to receive an associated one of the multiple serial data signals, each receive-lane including

a phase interpolator adapted to produce a sampling signal having an interpolated phase, and

*a data path adapted to sample and quantize the associated serial data signal in accordance with the sampling signal;*  
and

an *interpolator control module* coupled to each receive-lane, the interpolator control module being *adapted to cause the phase interpolator in each receive-lane to rotate* the interpolated phase of the sampling signal in the receive-lane *at a rate corresponding to a frequency offset* between the sampling signal and the serial data signal associated with the receive-lane *so as to reduce the frequency offset* between the sampling signal and the serial data signal.

(A107(col.38 l.64-col.39 l.5 (emphases added).) Emulex's noninfringement

argument on appeal focuses on the "interpolator control module" limitation, while its obviousness argument concerns the "data path" limitation.

### E. The Pickering Patent

Emulex presented at trial a single-reference obviousness defense based on European Patent No. EP0909035B1 (“Pickering”). (A217.) Pickering addresses a different problem from the ’150 patent: Pickering concerns only clock recovery, not data recovery. (A217; A748.) Pickering discloses “an apparatus for producing an oscillating signal” (i.e. a “clock”) and claims as its “present invention . . . devices for synchronising an output signal with an input signal.” (A217-18.) Pickering thus discloses circuitry for the recovery of a specific type of clock signal that is synchronized (i.e. “aligned”) to the edges of the incoming signal, not to the “peaks” and “valleys.” (A750.)

Pickering is a self-contained sub-system for recovering clock signals from multiple serial data signals. (A217; A748; A751.) Dedicated sub-systems concerning clock recovery only (like the one in Pickering) are used in a variety of applications in communication systems. (A749.)

Importantly, the *clock and data recovery* circuit claimed in the ’150 patent is distinct from the *clock recovery* circuit claimed in Pickering. (A748.) In order to recover *data* from incoming data signals, the claimed invention of the ’150 patent requires a “data path”—i.e., circuitry that is “adapted to sample and quantize the associated serial data signal in accordance with the sampling signal.” (A107.) Pickering does not disclose the use of a data path. (A217; A749.) In fact, it was



undisputed at trial that Pickering nowhere discloses a data path, circuitry adapted to sample data, or circuitry adapted to quantize data—which is unsurprising, because the purpose of Pickering is clock recovery, not data recovery. (A647-48; A748.)

### **III. The District Court’s Injunction**

The district court entered a permanent injunction on April 3, 2012. (A1-9.) In considering Broadcom’s request for injunctive relief, the district court applied the four-part test for injunctive relief set forth in *eBay Inc. v. MercExchange LLC*, 547 U.S. 388, 391 (2006):

- On the basis of unchallenged evidence that Emulex achieved design wins and corresponding market share gains at Broadcom’s direct expense, the district court concluded that Broadcom suffered irreparable harm and is likely to continue to do so in the absence of an injunction. (A16-20.)
- On the basis of unchallenged evidence that design wins yield unquantifiable secondary benefits, the district court concluded that money damages would be inadequate to compensate Broadcom for Emulex’s infringement. (A20.)
- On the basis of, among other things, unchallenged evidence that Emulex’s United States sales of infringing products amount to only a small portion of its revenues, the district court concluded that the balance of hardships as between Broadcom and Emulex favors an injunction. (A20-22.)
- On the basis of evidence offered by a handful of Emulex customers, the district court concluded that a “Sunset Period” is an appropriate safeguard against potential adverse consequences of an injunction. (A22-29.)

So as to “appropriately balance[] the public interest and all the other [equitable] factors,” the permanent injunction includes a “Sunset Period” permitting continuing sales of certain infringing products. (A26.) The district court determined that an eighteen-month Sunset Period was reasonable, and that the Sunset Period for sales of products found to infringe the ’150 Patent began on October 12, 2011—by which time “a reasonably prudent firm accused of infringement would have either ceased infringement and/or begun design-around efforts to avoid infringement.” (A26-27.) The district court made specific allowances for “the needs of Emulex customers”:

- Emulex is permitted to sell infringing products to those customers who “qualified an infringing product” and “placed a firm order for production[] quantities” of the infringing product prior to the start of the Sunset Period (A27); and
- Emulex is permitted to make sales “for the specific customer device(s) for which the infringing product has been qualified” prior to the start of the Sunset Period. (*Id.*)

To provide clarity, the district court required the parties to identify the “permissible scope of Sunset Sales” in an appendix to the injunction. (*Id.*) To date, the parties have agreed that at least { } combinations of customer devices and infringing products, offered by { } different Emulex customers, are eligible for continued sales during the Sunset Period. ( { }) In addition, the district court permitted certain sales to meet “the emergency needs of an end user affecting health of the public (including without limitation hospitals), public safety

(including without limitation law enforcement agencies and fire protection agencies), and governmental entities engaged in national defense.” (A5888-89.)

### SUMMARY OF THE ARGUMENT

Emulex has admitted that it “compete[s] directly” against Broadcom in the 10GbE controller market, and Emulex and its own technical expert witness admitted that “each and every accused device”—including Emulex’s 10GbE controller chips—implements the novel phase interpolator technology claimed in Broadcom’s ’150 patent. (A25134; A640.) In these circumstances, the district court was correct to grant JMOL of infringement, to reject Emulex’s obviousness challenge, and to enter an injunction that includes an eighteen-month Sunset Period designed to minimize harm to the Emulex “customers with the greatest interest in a continued supply of the infringing devices” as they transition to noninfringing products. (A27.)

Emulex’s appeal raises three arguments,<sup>4</sup> none of which have merit. **First**, JMOL of infringement was appropriate, because Emulex was “fully heard” on the issue of infringement, and there was no “legally sufficient evidentiary basis” to support a finding of noninfringement. *Summers v. Delta Air Lines, Inc.*, 508 F.3d 923, 926 (9th Cir. 2007) (quoting Fed. R. Civ. P. 50(a)(1)). There were no factual

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<sup>4</sup> Emulex’s arguments concerning the ’691 patent and indirect competition in the Fibre Channel market are moot, given the parties’ partial settlement.

disputes about the operation of the accused products: Emulex and its expert both expressly conceded that “each and every accuse device” included an “interpolator control module” which “rotated” the signal phase, so that “the frequency offset is reduced”—exactly as the ’150 patent claims. (A640; A107(col.38 l.64-col.39 l.5).) Emulex’s noninfringement case at trial was premised on the legally incorrect principle that a device that “sometimes but not always” infringes is not infringing. (A791.) On appeal, Emulex raises an entirely different argument, related to a different claim limitation—“at a rate corresponding to a frequency offset”—which was not addressed below and is therefore waived. Emulex’s new argument also depends on a claim construction, in which Emulex incorrectly interprets the “corresponding to” limitation as “defined by a specific formula” in the specification. (Emulex Br. 31.) Emulex’s new claim construction position should be rejected, and the district court’s JMOL of infringement should be affirmed.

***Second***, Emulex repeats its “single reference obviousness” argument based on the Pickering reference, which the district court correctly rejected. Emulex failed to establish by clear and convincing evidence any reason to combine Pickering with any “data path” purportedly within the general knowledge of a person of ordinary skill in the art. Moreover, Emulex failed to establish by clear and convincing evidence that the combination of Pickering and a data path would have provided a reasonable expectation of achieving—or in fact would have

resulted in—the invention of claim 8. Emulex also downplays the importance of secondary considerations (which the jury found in Broadcom’s favor) and ignores the substantial evidence supporting them.

**Finally**, Emulex’s challenges to the district court’s exercise of discretion in crafting a permanent injunction are baseless. The technology of the ’150 patent is fundamental to Emulex’s infringing products, and Emulex has relied on that technology to achieve market success at the expense of Broadcom—a direct competitor. The district court carefully and consistently applied the *eBay* standards, and arrived at an injunction with a precisely crafted Sunset Period that protects those third parties with the “greatest interest in the continued supply” of Emulex’s infringing products. (A26-29.)

## **ARGUMENT**

### **I. STANDARD OF REVIEW**

This Court “review[s] the grant or denial of a motion for JMOL under the law of the regional circuit.” *ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1343 (Fed. Cir. 2012). “In the Ninth Circuit, a district court’s grant of JMOL is reviewed de novo.” *Lucent Techs., Inc. v. Gateway, Inc.*, 543 F.3d 710, 717 (Fed. Cir. 2008) (citing *City Solutions, Inc. v. Clear Channel Commc’ns*, 365 F.3d 835, 839 (9th Cir. 2004)). Rule 50(a)(1) permits a court to grant JMOL “if a party has been fully heard on an issue during a jury trial and the court finds that a

reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.” *Summers*, 508 F.3d at 926 (quoting Fed. R. Civ. P. 50(a)(1)). JMOL is appropriate “to remove ‘issue[s]’—claims, defenses, or entire cases—from the jury when there is no ‘legally sufficient evidentiary basis’ to support a particular outcome.” (*Id.*)

“This [C]ourt reviews a jury’s conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence.” *LNP Eng’g Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347, 1353 (Fed. Cir. 2001). “These underlying factual findings [include] secondary considerations, otherwise known as objective indicia of nonobviousness.” *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1338-39 (Fed. Cir. 2008).

This Court “review[s] the district court’s decision entering an injunction, as well as the scope of the injunction, for abuse of discretion.” *Strech, Inc. v. Research & Diagnostic Sys., Inc.*, 665 F.3d 1269, 1293 (Fed. Cir. 2012).

## II. THE DISTRICT COURT CORRECTLY GRANTED JMOL THAT EMULEX INFRINGES CLAIM 8 OF THE '150 PATENT.

### A. There Are No Factual Disputes About the Operation of the Phase Interpolator in the Accused Products.

As Emulex admits in its opening brief, the only limitation of claim 8 of the '150 patent for which it disputed infringement at trial was the “interpolator control module” limitation. (Emulex Br. 19.) That limitation recites:

an *interpolator control module* coupled to each receive-lane, the interpolator control module being *adapted to cause the phase interpolator in each receive-lane to rotate* the interpolated phase of the sampling signal in the receive-lane *at a rate corresponding to a frequency offset* between the sampling signal and the serial data signal associated with the receive-lane *so as to reduce the frequency offset* between the sampling signal and the serial data signal.

(A107-08 (emphases added).)

There was at trial—and is on appeal—no dispute that Emulex’s accused products all contain an interpolator control module. (*See, e.g.*, Emulex Br. 32.) Nor is there any dispute that the interpolator control module in “each and every accused device” will “reduce the frequency offset between the sampling signal and the serial data signal”—as claim 8 requires. (A640.) Emulex’s expert admitted precisely this:

[Q.] So under your interpretation of frequency offset . . . , each and every accused device operates in the manner in which the frequency offset is reduced; correct?

A. Sometimes it will operate. It does not implement an algorithm that always reduces that frequency offset.

Q. But, in fact, *in operation of each and every accused device it will occur that the frequency offset is reduced*; correct?

A. *That is correct.*

(*Id.* (emphases added).)

Likewise, there is no dispute about *how* the interpolator control module in the accused products “reduce[d] the frequency offset.” Emulex’s expert, Dr. Nikolic, conceded that all of the Emulex products used a so-called “half-rate” architecture—and, in fact, that this “half-rate” architecture was “*the* basis” for Emulex’s noninfringement case:

Q. The basis for your opinion that the Emulex products don’t infringe is because in your opinion they perform something called half rate sampling; is that correct?

A. That is correct.

(A638.)

Emulex conceded in its briefing before the district court that the interpolator control module in all of the accused products employs a “half-rate architecture.”

(A1741 (discussing “a half-rate architecture (the architecture *employed by the accused products*)” (emphasis added)); *id.* (discussing a “sub-symbol sampling rate architecture, such as the one *employed by the accused products*” (emphasis added))).) Nor is there any dispute on appeal about how any of the accused products work: Emulex has conceded that “the accused circuits . . . are adapted to



rotate at a rate that corresponds to  $\omega_s - \frac{1}{2}\omega_d$ —i.e., that they use a half-rate architecture. (Emulex Br. 32.)

Emulex’s sole challenge is a legal one: whether this “half-rate” architecture satisfies the “rate corresponding” limitation.

**B. Emulex Has Waived Its Challenge to the “Rate Corresponding to a Frequency Offset.”**

At trial, Emulex’s sole noninfringement defense was that a “half-rate” architecture could not infringe, because it only “reduce[d] the frequency offset” half of the time, and increased the frequency offset the other half of the time. (A579 (counsel for Emulex explaining that Emulex’s expert would argue “that there is rotation but not so as to reduce the frequency offset. Sometimes it’s reduced; sometimes it’s increased.”).) Emulex based its noninfringement defense at trial on the legally incorrect premise that a product that infringes a claim only some of the time is somehow noninfringing. (A791.)

Emulex was, of course, wrong. “If a claim reads merely on a part of an accused device, that is enough for infringement.” *SunTiger, Inc. v. Sci. Res. Funding Group*, 189 F.3d 1327, 1336 (Fed. Cir. 1999); *see also Bell Commc’ns Res., Inc. v. Vitalink Commc’ns Corp.*, 55 F.3d 615, 622-23 (Fed. Cir. 1995). In this appeal, Emulex has rightly abandoned its legally unsound argument that the “half-rate” sampling system of the accused products does not “reduce the frequency offset.”

Instead, Emulex now argues that its “half-rate” system does not satisfy a different portion of the “interpolator control module” claim: the “at a rate corresponding to a frequency offset” language. More specifically, Emulex argues that a “half-rate” system cannot satisfy this portion of the “interpolator control module” limitation because it does not rotate at a rate “ $\Delta\omega = \omega_s - \omega_d$ .” (Emulex Br. 32.) This is both a new noninfringement position and a new claim construction position, both of which Emulex waived.

**1. Emulex Did Not Challenge Broadcom’s Evidence on the “Rate Corresponding to a Frequency Offset” Limitation at Trial.**

At trial, Broadcom presented uncontroverted evidence on the “rate corresponding to a frequency offset” limitation. Because the “interpolator control module” limitation is lengthy (and because Emulex had never given any prior indication that it disputed the “rate corresponding to a frequency offset” aspect of that limitation), Broadcom asked its expert to use the shorthand “interpolator control module” to refer to an interpolator control module having all of the features of the limitation, *including* the “rate corresponding to a frequency offset” requirement. (A486.) For each of the accused products, Broadcom’s expert identified the interpolator control module, explained how the circuitry worked, and referred specifically to the relevant pages of schematics, reverse engineering diagrams, and/or related technical documents. (A491-92 (BE3); A12759-920

(BE3); A493-95 (BE2); A492-93 (Lancer); A12084-273 (Lancer); A36-39 (district court summary for each product); A2170-72 (Broadcom summary).)

Broadcom's expert opined that each of the accused products satisfied all of the limitations of claim 8. (A490-92 (BE3); A494 (BE2); A493 (Lancer).)

Emulex never cross examined Broadcom's expert about the "rate corresponding to a frequency offset" limitation. In fact, for the entire course of Emulex's cross examination of Broadcom's expert, the word "corresponding" never once appears in the transcript. (A496-503.)

Moreover, Emulex's own expert never offered any opinion that the "rate corresponding" limitation was not satisfied. Tellingly, Emulex's brief cites only a single line of testimony from its expert to claim that it challenged the sufficiency of Broadcom's evidence on the "rate corresponding" limitation: the general statement, "I am basically disputing that it practices that limitation on the claim that describes the operation of the interpolator control module." (A638.) In fact, in the very next line of his testimony, Emulex's expert admits that the "thrust" of his disagreement with Broadcom's expert is the "reduce[] the frequency offset," limitation—with no mention of the "rate corresponding" language. (*Id.*) And repeatedly, Emulex's expert testified that he was emphasizing the words "so as to reduce" in the claim, not the words "at a rate corresponding." (A603-04.)

In its brief, Emulex criticizes Broadcom for “elect[ing] not to present any testimony in rebuttal to Dr. Nikolic on the subject of infringement.” (Emulex Br. 20.) But there was nothing to rebut. Dr. Nikolic had conceded that “each and every accused device” used a half-rate system, and neither his testimony nor Emulex’s cross examination of Broadcom’s expert Dr. Stojanovic ever suggested that Emulex disputed the “rate corresponding” limitation. (A640.)

“The general rule is that this court does not consider arguments not raised below.” *Celsis In Vitro, Inc. v. CellzDirect, Inc.*, 664 F.3d 922, 931 (Fed. Cir. 2012); *see also Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1426 (Fed. Cir. 1997) (“With a few notable exceptions, such as some jurisdictional matters, appellate courts do not consider a party’s new theories, lodged first on appeal. If a litigant seeks to show error in a trial court’s overlooking an argument, it must first present that argument to the trial court.”). Emulex’s first mention of its new “rate corresponding” argument appears to have been at oral argument (following the close of briefing) on its renewed JMOL. (A37.) This is insufficient to preserve the issue for appeal. *See, e.g., Celsis*, 664 F.3d at 931; *cf. i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 857 (Fed. Cir. 2010) (holding pre-verdict challenge to sufficiency of evidence required to preserve post-verdict JMOL).

In opposition to Broadcom’s pre-verdict JMOL, Emulex never once asserted any dispute concerning the “rate corresponding” limitation; it focused instead on

its erroneous “part time infringement” argument. In fact, Emulex’s brief in opposition makes no mention whatsoever of the “rate corresponding” language, except in quotes of the larger “interpolator control module” limitation—which quotes specifically emphasize *other* parts of the limitation. (A1739, 1744.)

Moreover, after the district court indicated that it would grant Broadcom’s motion for JMOL, Emulex’s counsel attempted to preserve his rights for appeal by reading into the record citations to various supposed “failure[s] of proof”—but even that litany did *not* include the “rate corresponding” limitation among them. (A792.)

**2. Emulex Cannot Assert a New Claim Construction for “Corresponding to a Frequency Offset” for the First Time on Appeal.**

Emulex’s newly advanced noninfringement argument also depends on an implicit claim construction of “corresponding to a frequency offset”—a construction that it never advanced at the district court. Emulex cannot raise a new claim construction dispute on appeal. *See, e.g., Lazare Kaplan Int’l, Inc. v. Photoscribe Techs., Inc.*, 628 F.3d 1359, 1376 (Fed. Cir. 2010) (“As we have repeatedly explained, litigants waive their right to present new claim construction disputes if they are raised for the first time after trial.”); *Conoco, Inc. v. Energy & Envtl. Int’l, L.C.*, 460 F.3d 1349, 1358-59 (Fed. Cir. 2006 ) (“[A] party may not introduce new claim construction arguments on appeal or alter the scope of the

claim construction positions it took below.”); *see also Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 694 (Fed. Cir. 2008) (same).

On appeal, Emulex argues for the first time that the claim term “a rate corresponding to a frequency offset” is “defined by a specific formula given in the patent:  $\Delta\omega = \omega_s - \omega_d$ .” (Emulex Br. 31 (citing A100(col.23 ll.3-5)).) But Emulex never before requested a construction of “rate corresponding to a frequency offset” as limited to the specific  $\Delta\omega = \omega_s - \omega_d$  equation disclosed in one portion of the ’150 patent specification.

To the contrary, Emulex never even previously suggested that “rate corresponding to a frequency offset” required construction. In fact, although Emulex proposed a total of *twenty-eight* terms from the ’150 patent for claim construction (of which nineteen appear in asserted claim 8), it never proposed “rate corresponding to a frequency offset” (or any variation of it). (A25087-88.) Emulex cannot now suggest that this term is “defined by a specific formula given in the patent,” when that formula appears nowhere in the claim.

**C. Emulex’s Newly Raised Construction of “Rate Corresponding to a Frequency Offset” Is Wrong.**

In any event, the new claim construction on which Emulex bases its new noninfringement position is wrong. Claim 8 does not require that “rate corresponding to a frequency offset” be equal to “ $\omega_s - \omega_d$ .” Rather, the claim

permits a rate that corresponds to any frequency offset—including the half-rate frequency offset “ $\omega_s - \frac{1}{2}\omega_d$ ”

The Court “construes claims according to the principles set forth by this court in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).” *Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007). Specifically, the Court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean,” including “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Phillips*, 415 F.3d at 1314.

Emulex would interpret “at a rate corresponding to a frequency offset” to mean, effectively, “at a rate equal to the frequency offset defined by  $\omega_s - \omega_d$ .” This construction is at odds with the claim language and the specification, for several reasons. **First**, the ordinary meaning of “corresponding to” is broader than “equal to.” In previous claim construction decisions, this Court has rejected the argument that “corresponding to” means “equal to,” instead concluding that the “plain and ordinary meaning” of “corresponding to” is “similar, comparable, and/or matching.” *Respironics, Inc. v. Invacare Corp.*, 303 Fed. Appx. 865, 880-

81 (Fed. Cir. 2008) (nonprecedential) (agreeing that “the phrase ‘corresponding to’ means something more than just ‘equal to’”).

**Second**, in the specific context of the technology of the ’150 patent, “equal” is a subset of “corresponding.” As the patent explains, “Reference stages 802a’ 802d’ respectively derive component signals 824a 824d, each having a phase *based on (for example, equal to) a corresponding* one of the reference signals 206a 206d.” (A98(col.20 ll.9-13) (emphasis added).) Even Emulex’s own expert Dr. Nikolic used the word “corresponds” to describe a frequency that is half the rate—not equal to—a “correspond[ing]” frequency. (A601 (“It is operating at half of the original clock frequency, at the half of the frequency that corresponds to the incoming data rate.”).)

**Third**, claim 8 contemplates that there will be more than one possible and relevant “frequency offset.” It refers to “a” frequency offset, rather than “the” frequency offset, or any specific frequency offset. (A108(col.39 ll.1-2.) Moreover, the claim makes clear that by “rotat[ing] the interpolated phase of the sampling signal at a rate corresponding to a frequency offset,” the interpolator control module will “*reduce* the frequency offset.” (A107-08(col.38 l.67-col.39 l.5) (emphasis added).) But if, as Emulex contends, the rate of reduction must be equal to  $\omega_s - \omega_d$ , the rotation would not “reduce” the frequency offset—it would eliminate it entirely. Thus, the structure of the claim anticipates that the



interpolator control module will “reduce” the frequency offset by rotating the phase “at a rate corresponding to an offset,” whether in a half-rate, full-rate, quarter-rate, or other “corresponding” rate structure.

*Fourth*, as both Emulex and its expert witness concede, the specification includes embodiments that are not limited to a “full-rate” architecture—in which the rate of reduction is *equal to*  $\omega_s - \omega_d$ . Specifically, as Emulex has admitted, “the patent specifically describes a ‘quarter-rate architecture’” (among other architectures). (A1742; *see also* A104 (col.31 ll.19-38) (disclosing quarter-rate architecture).) In a quarter-rate architecture, there is a frequency offset between “a sampling signal frequency of one-quarter the symbol rate of serial data signal”—i.e.,  $\omega_s - \frac{1}{4}\omega_d$ . (A104(col.31 ll.28-31).) Emulex’s construction of “rate corresponding to a frequency offset” as a rate equal to  $\omega_s - \omega_d$  would exclude this quarter-rate architecture embodiment.

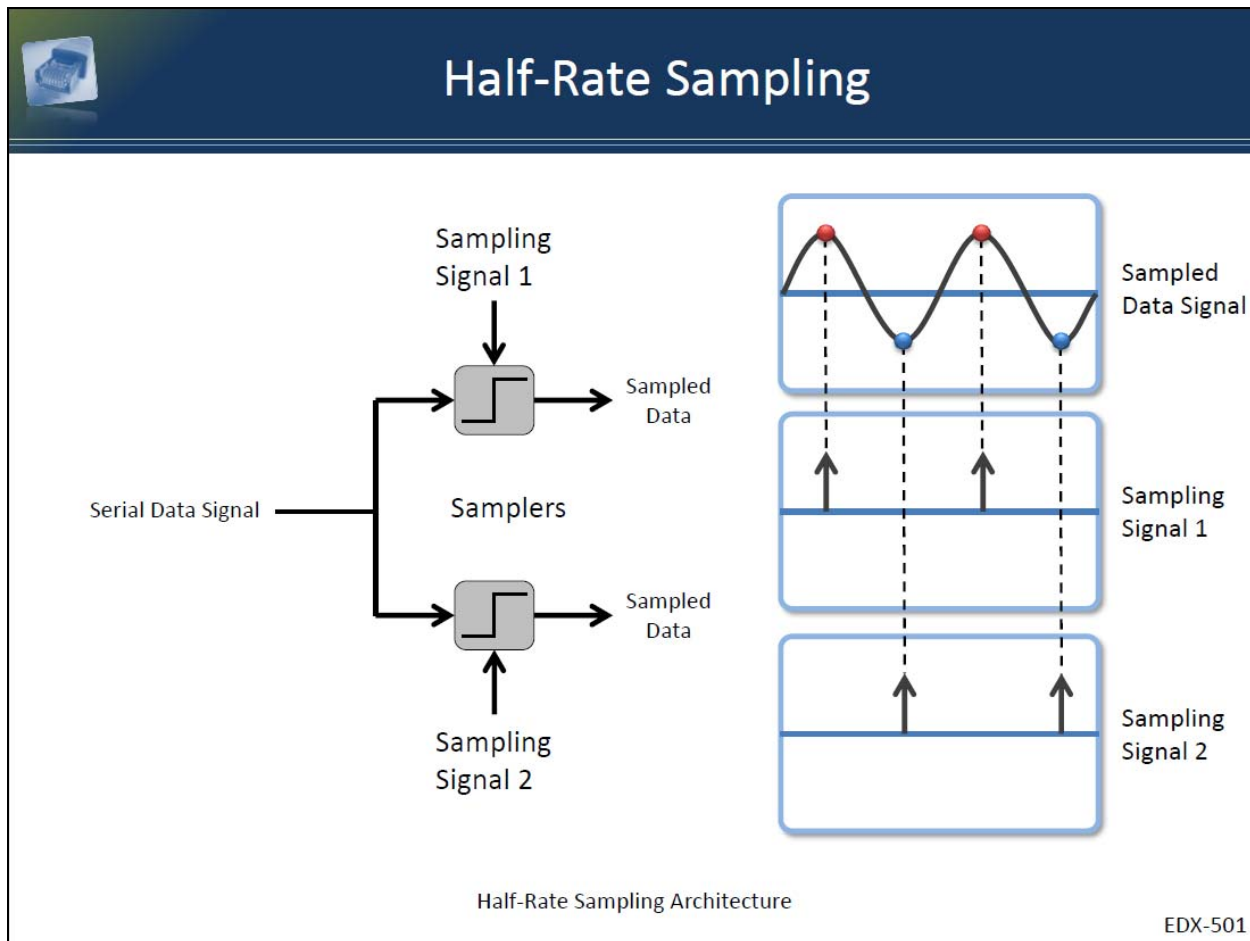
Emulex’s argument that the “rate corresponding to a frequency offset” must mean a rate of “ $\omega_s - \omega_d$ ” is directly contradicted by the ’150 patent specification. The ’150 patent explains that “[w]hen the sampling signal and the serial data signal are ‘frequency offset’ from one another, the two signals are not frequency synchronized.” (A91(col.6 ll.16-18).) Thus, the sampling signal and data signal are “frequency synchronized” when they are not frequency offset. If Emulex were correct that the “frequency offset” is always  $\omega_s - \omega_d$ , then the signals would be

frequency synchronized only when  $\omega_s - \omega_d = 0$ , in other words, when  $\omega_s = \omega_d$ . But the '150 patent makes clear that there can be frequency synchronization even when  $\omega_s$  does not equal  $\omega_d$ . Specifically, the specification explains that for frequency synchronization to occur, “sampling frequency  $\omega_s$  and serial data signal frequency  $\omega_d$  need to be *related* to one another, *but not necessarily equal to one another*.” (A101(col.26 ll.4-13) (emphases added).) The specification further states that “ $\omega_s$  and  $\omega_d$  are considered synchronized to one another when  $\omega_d = n * \omega_s$ , where  $n$  is an integer greater than one.” (*Id.*) In other words, the '150 patent discloses that there is no frequency offset (i.e., there is frequency synchronization) when  $\omega_d = n * \omega_s$  or  $\omega_s = 1/n \omega_d$ . This is exactly the relationship between the sampling frequency and the data signal frequency in the quarter-rate embodiment ( $\omega_s = \frac{1}{4} \omega_d$ ) and in the half-rate accused devices ( $\omega_s = \frac{1}{2} \omega_d$ ). It is this “relationship” between the sampling frequency  $\omega_s$  and data signal frequency  $\omega_d$  that claim 8 captures by using the term “corresponding to a frequency offset” rather than Emulex’s narrower proposed construction of “equal to  $\omega_s - \omega_d$ .”

As this Court has repeatedly explained, “there is a strong presumption against a claim construction that excludes a disclosed embodiment.” *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1324 (Fed. Cir. 2011). Emulex has offered no justification for ignoring this strong presumption here.

**D. Emulex and Its Own Expert Concede that the Accused Products Rotate Phase at a Rate “Corresponding To” a Frequency Offset.**

Emulex and its expert have admitted that every accused product uses a “half-rate” architecture, and includes an interpolator control module that is “adapted to rotate at a rate that corresponds to  $\omega_s - \frac{1}{2}\omega_d$ .” (Emulex Br. 32.) Under the correct construction of “rate corresponding to a frequency offset” (not limited to  $\omega_s - \omega_d$  as Emulex suggests), rotating at  $\omega_s - \frac{1}{2}\omega_d$  is rotation at a rate “corresponding to a frequency offset,” namely, the  $\omega_s - \frac{1}{2}\omega_d$  offset. In fact, Emulex’s own expert presented a demonstrative exhibit to the jury that specifically illustrated this “correspond[ence],” showing dotted lines indicating the correspondence between each sampling signal rate, and the rate of the data signal:



(A25228.)

Because there were no relevant factual disputes and because Emulex's admitted "half-rate" architecture infringed as a matter of law, there was no "legally sufficient evidentiary basis" to any outcome other than a finding of infringement. *Summers*, 508 F.3d at 926. JMOL was therefore appropriate.

Emulex makes much of the fact that JMOL in favor of the party bearing the burden of proof is appropriate only in rare instances. (Emulex Br. 27 (citing *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1375 (Fed. Cir. 2001) and *United Cal. Bank v. THC Fin. Corp.*, 557 F.2d 1351, 1356 (9th Cir.

1977)).) But Emulex ignores a key exception to this general principle: when the nonmoving party's own expert witness makes admissions sufficient to support JMOL. "[A]n admission made by a [non-moving party's] witness can be sufficient to support entry of a JMOL in favor of [the other party] after the close of the [non-moving party's] case-in-chief, even where the [the moving party] bears the burden of proof on the decided issue." *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1065 (Fed. Cir. 1998). That is precisely the circumstance here.

**E. Given Emulex's Own Concessions, None of Its Criticism of Broadcom's Expert Affect the JMOL Analysis.**

In a single paragraph of its brief, Emulex lists several criticisms of the testimony of Broadcom's expert Dr. Stojanovic. Particularly in view of the concessions of Emulex's expert witness, none of these criticisms preclude JMOL.

*First*, Emulex baselessly claims that Dr. Stojanovic "admitted that he did not even know how the accused [interpolator control modules] are in fact implemented in the accused products." (Emulex Br. 33.) This is false, and the transcript that Emulex cites contains no such testimony. The pages that Emulex cites are Dr. Stojanovic's testimony that he did not rely on "RTL code" or "measurement of signals." But as to RTL code, Dr. Stojanovic expressly testified that "it wasn't necessary for [him] to form [his] opinion." (A497.) And as to testing, the pages that Emulex cites also include Dr. Stojanovic's testimony that "testing or measurement of signals" on sample chips was unnecessary for his analysis (since

he relied on schematics and reverse engineering reports). (A501-02.) In any event, Emulex's own expert reached his noninfringement opinion without any reliance on RTL code or signal testing. (A37.) As the district court put it, Emulex's "arguments would be more compelling if there were evidence that such steps were necessary." (*Id.*) There was not.

**Second**, Emulex argues that Dr. Stojanovic "admitted he was not a skilled artisan during the relevant time period." (Emulex Br. 33.) This again misrepresents Dr. Stojanovic's testimony. He testified that he had not done industry work on clock and data recovery as of April 2001—but that he *did* do that work beginning later in 2001. (A496.) In any event, Emulex never explains why the timing of Dr. Stojanovic's work in 2001 would have given the jury any basis for rejecting the analysis that he performed *in 2010 and 2011*. There was no dispute as to Dr. Stojanovic's expertise in the field at the time of trial; Emulex did not even object to Broadcom's tender of Dr. Stojanovic as "an expert in the field of circuit design." (A483.)

**Finally**, Emulex offers various critiques of the specific documentation concerning the operation of the interpolator control module, on which Dr. Stojanovic relied to render his opinion. (Emulex Br. 33.) But these criticisms ignore that there was no dispute about the operation of the interpolator control module in "each and every accused device." (A640.) They therefore provide no

“legally sufficient evidentiary basis” to deny JMOL, where the “admission made by a [Emulex’s expert] witness [was] be sufficient to support entry of a JMOL.” *Summers*, 508 F.3d at 926; *Nobelpharma*, 141 F.3d at 1065.

### **III. CLAIM 8 OF THE ’150 PATENT IS NOT OBVIOUS.**

Obviousness requires proof by clear and convincing evidence of “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Where, as here, the relevant obviousness argument was already before the Patent Office, it is “especially difficult” for to carry this burden.<sup>5</sup> *See Glaxo Grp. Ltd. v. Apotex, Inc.*, 376 F.3d 1339, 1348 (Fed. Cir. 2004) (citing *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1323 (Fed. Cir. 1999)).

#### **A. There Was No Reason to Combine Pickering with Any Data Path.**

The evidence at trial demonstrated that a person of ordinary skill in the art would have had no reason to combine Pickering with any “data path,” because Pickering was not concerned with “data” recovery. Emulex does not dispute that Pickering does not disclose the claimed “data path” of claim 8. Instead, Emulex

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<sup>5</sup> There is no dispute that the Patent Office not only considered the Pickering reference and found the invention of claim 8 to be new and nonobvious over it (A11822; A11127), but also considered at least three separate references that (according to Emulex) disclosed a “data path” which the patent examiner could have combined with Pickering (A649).

argues that the missing “data path” was the “only reason” for Pickering to solve the problem it addresses, because a data path was “necessary to ‘recover’ data.”

(Emulex Br. 25, 34.) Emulex’s argument rests on the assumption that the Pickering patent was concerned with clock *and data* recovery—like claim 8 of the ’150 patent—as opposed to clock recovery alone. Emulex is wrong.

Rather, as the district court found, Pickering concerns recovering the *clock* signal only, not data. (Emulex Br. 34; A245; A748(8:3-7).) Dr. Michael Le—one of the ’150 patent inventors—explained that clock and data recovery are separate functions. (A471(64:13-15).) As Broadcom’s expert Dr. Stojanovic explained, “Pickering is a self-contained system. Its task and purpose is to recover the clock . . . and there’s no purpose or intention described in Pickering to broaden that purpose to data recovery.” (A748; *see also id.* (“[T]he Pickering patent does not talk about data path, does not mention any such purpose.”).) More specifically, “the purpose of Pickering is to produce a clock signal that is phase-aligned with the input data,” and Pickering refers to a “sub system” that lacks any “data output.” (*Id.*) Thus, Pickering and the ’150 patent are directed at two different problems—clock recovery (Pickering), and clock and data recovery (the ’150 patent). (A751.)

Nor is data recovery the only purpose for clock recovery, as Emulex contends. Emulex incorrectly suggests that Broadcom did not dispute Emulex’s claim that “the only reason for Pickering to have solved the interference problem in

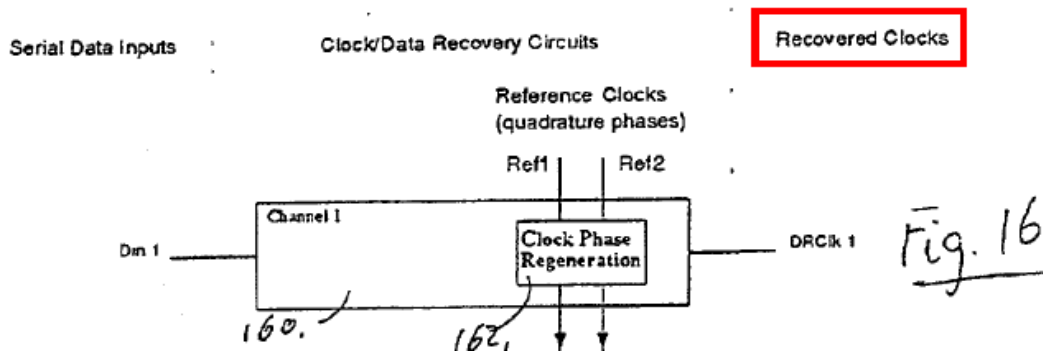


clock recovery was to use the recovered clock to sample data.” (Emulex Br. 34.) To the contrary, the parties experts disagreed on this very issue, and Broadcom’s expert specifically testified that “the purpose of Pickering is clearly stated in the patent, that is, to recover *just the clock* from the input.” (A748(8:15-19) (emphasis added); *see also* A751 (testimony that Pickering and ’150 patents did not solve the same problem).)

Nor did Broadcom’s expert Dr. Stojanovic ever testify that a data path was a necessary addition to Pickering, as Emulex contends. (Emulex Br. 20, 35, 38.) Dr. Stojanovic did not testify that Pickering “describes a system for ‘demodulating’ . . . a received data signal” as Emulex argues. (*Id.* at 20.) Rather, Dr. Stojanovic confirmed that the Pickering reference includes a statement that “[o]ne particular application of PLLs” (not the Pickering invention) “is in data transmission systems,” and in some systems “*it is important to recover a corresponding clock signal* at the receiver in order to demodulate the received signal.” (A755; A218 (emphasis added).) Pickering says nothing about the use of its invention for this application, or about how the “received signal” will be “demodulate[d]”—and certainly never implies that the clock recovery system disclosed in the patent should be modified to include a “data path” to accomplish demodulation. Rather, the purpose of the Pickering invention is to “recover a corresponding clock signal”—not to recover data using a data path. (*See* A748.) Moreover, as the

district court observed, even if there were “some evidence” of a separate implied data path suggested by this language, it is nevertheless insufficient to establish single-reference obviousness by clear and convincing evidence. (A246.)

Emulex’s reliance on Figure 16 of Pickering as evidence of the necessity of a data path is similarly misplaced. In its brief, Emulex ignores the third heading in Figure 16—“***Recovered Clocks***”—which describes the operation of the figure—***clock*** recovery, not ***data*** recovery. The Pickering invention ***receives*** serial “data” inputs, but produces only “recovered clocks” as its output:



(A233 (red annotation added).) As Dr. Stojanovic explained, Figure 16 does not show “data recovery”—it only shows “clock recovery.” (A749.) Emulex identifies no data outputs, and no recovered data, anywhere in the Pickering patent.

Finally, Emulex’s obviousness argument impermissibly relies upon hindsight. Because there must be a reason to combine the elements in the manner claimed, an obviousness analysis must avoid “falling prey to hindsight bias . . . and must be cautious of argument reliant upon ex post reasoning.” *KSR*, 550 U.S. at

421. “[I]t is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966) (court must “guard against slipping into use of hindsight and [ ] resist the temptation to read into the prior art the teachings of the invention in issue.”); *see also Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1377 (Fed. Cir. 2012) (vacating obviousness determination based on “prohibited reliance on hindsight”).

Emulex asserts that “if one of ordinary skill in the art were to draw upon their experience with [clock and data recovery] circuits to make a [clock and data recovery] circuit using the clock recovery algorithm disclosed in Pickering, that circuit would necessarily include a data path.” (Emulex Br. 21.) But Pickering itself shows that clock recovery circuitry and data recovery circuitry can and were designed separately—and that clock recovery circuitry need not “necessarily include a data path.” Emulex fails to identify *any* reason to add a data path to Pickering, other than to satisfy claim 8—and as this Court and the Supreme Court have made clear, using the claim as a roadmap to modify and combine prior art is a prohibited form of hindsight reconstruction. *See, e.g., Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 810 (1986) (“[I]n addressing the question of obviousness a judge must not pick and choose isolated elements from the prior art

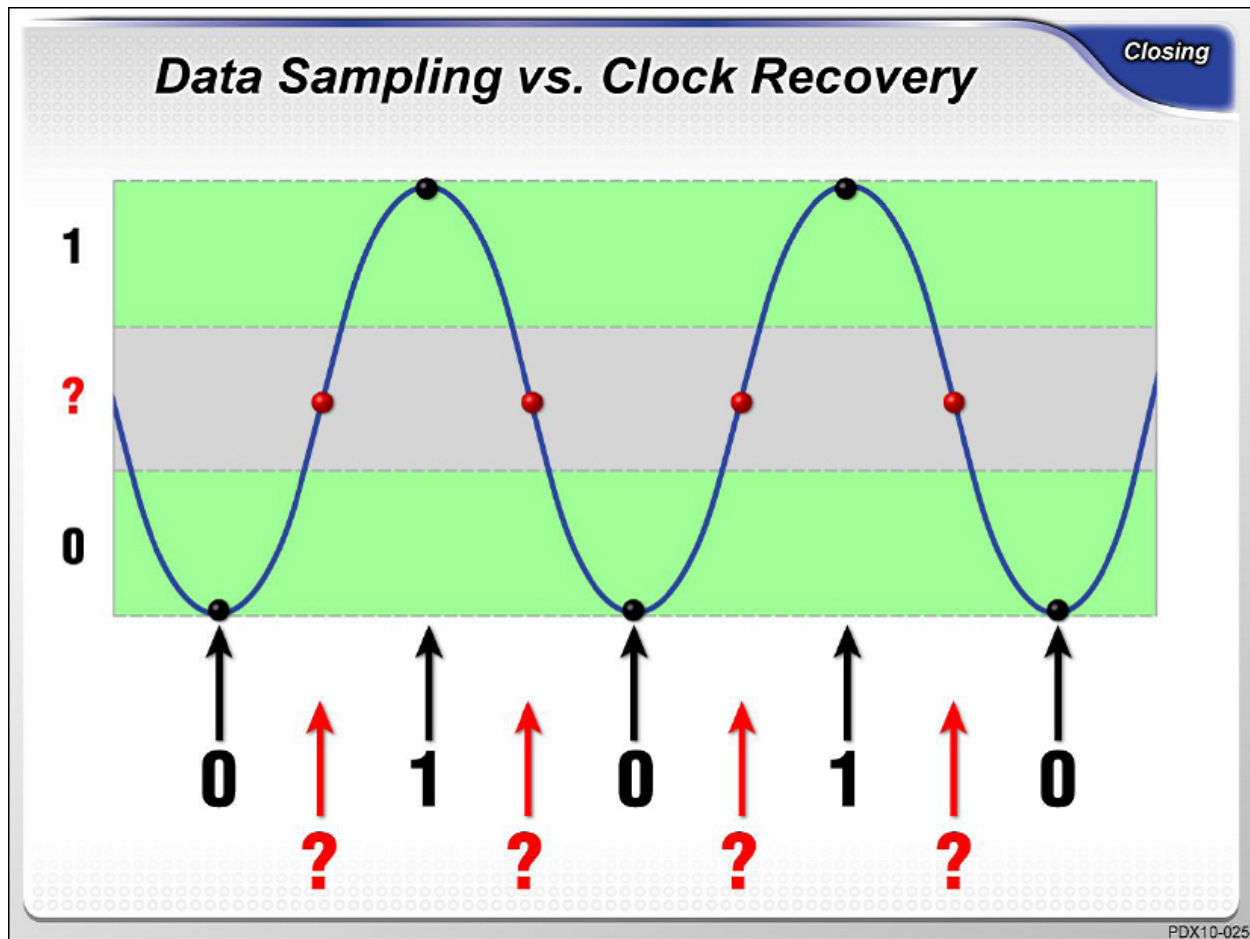
and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention.”); *Grain Processing Corp. v. Am. Maize-Products Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988) (“Care must be taken to avoid hindsight reconstruction by using ‘the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.’” (quoting *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1012 (Fed. Cir. 1983))).

**B. Emulex Did Not Prove A Reasonable Expectation of Success.**

Even if a person of ordinary skill in the art had been motivated to add a data path to Pickering, that person could not have had any reasonable expectation of success in making the invention of claim 8. (A749.) “An obviousness determination requires that a skilled artisan would have perceived a reasonable expectation of success in making the invention in light of the prior art.” *Amgen Inc. v. F. Hoffman-LA Roche Ltd*, 580 F.3d 1340, 1362 (Fed. Cir. 2009); *see Power-One*, 599 F.3d at 1352 (obviousness requires a “plausible rational[e] as to why the prior art references would have worked together to render the [asserted claims] obvious”); *see also Hynix Semiconductor v. Rambus Inc.*, 645 F.3d 1336, 1353 (Fed. Cir. 2011) (affirming judgment of nonobviousness and observing that “[h]ow well a combination is expected to work is certainly a legitimate consideration in an obviousness inquiry”); *DePuy Spine, Inc. v. Medtronic Sofamor*

*Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009) (affirming judgment of nonobviousness and observing that a conclusion of nonobviousness follows where “the prior art indicated that the invention would not have worked for its intended purpose”).

As Dr. Stojanovic explained, Emulex’s proposed combination of Pickering with a data path would not have resulted in the invention of claim 8 and would not have worked for its intended purpose. (A749.) Dr. Stojanovic described how Pickering was designed to produce a specific type of clock signal that was aligned to the edges of transitions between data bits. (A750.) Dr. Stojanovic illustrated at trial the difference between the data-recovery circuit of the ’150 patent—which samples an input signal at or near the “peaks” and “valleys” of the signal to recover data values representing a “1” or a “0”—and the clock recovery circuit of Pickering—which samples the input signal in the “gray zone” at or near the midpoint of the transition between a “1” and a “0”:



(See A25191 (where the black arrows represent the data sampling signal of the '150 patent, aligned to the peaks and valleys representing "1"s and "0"s, and the red arrows represent the clock signal of Pickering, aligned to the transitions between bits where data values are undefined).)

Dr. Stojanovic further explained how the combination of the clock signal from Pickering with a data path would have resulted in an inoperable circuit that would attempt to sample the input signal in the undefined "gray zone" (resulting in an undefined value corresponding to neither a "0" nor a "1") and would not properly recover data. (A750-51.) Emulex's proposed combination would

therefore have resulted in a non-functional circuit. (A751.) Emulex thus failed to show “by clear and convincing evidence that a person of ordinary skill in the art . . . would have had a reasonable expectation of success” in carrying out its proposed combination. *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007). In its brief, Emulex does not explain this deficiency or even attempt to demonstrate such a reasonable expectation of success.

**C. Secondary Considerations Support a Finding of Nonobviousness.**

As this Court has recognized, “[s]econdary considerations may be the most pertinent, probative, and revealing evidence available to the decision maker in reaching a conclusion on the obviousness/nonobviousness issue.” *E.g., Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985). Such considerations “enable[] the . . . court to avert the trap of hindsight.” *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1310 (Fed. Cir. 2010) (quoting *Custom Accessories v. Jeffrey-Allan Indus.*, 807 F.2d 955, 960 (Fed. Cir. 1986)). For this reason, secondary considerations are “independent evidence of nonobviousness,” and are always relevant. *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008) (citing *Catalina Lighting, Inc. v. Lamps Plus, Inc.*, 295 F.3d 1277, 1288 (Fed. Cir. 2002) (“Objective indicia may often be the most probative and cogent evidence of nonobviousness in the record.”)).

The jury's verdict on secondary considerations confirms the nonobviousness of claim 8. The undisputed evidence at trial demonstrated a nexus between the secondary considerations advanced by Broadcom—long-felt need and failure of others, commercial success, and praise from others in the field—and the invention of claim 8 of the '150 patent. None of Emulex's arguments challenging the jury's findings have merit.

**First**, contrary to Emulex's argument that "[n]one of the alleged secondary considerations was ever specifically tied to novel features claimed in the '150 patent" (Emulex Br. 42), Broadcom presented *undisputed* evidence of such a nexus. As the district court observed, Dr. Stojanovic directly linked the secondary considerations to the specific of the claim at issue: "[O]nce you were able to solve the *multilane transceiver problem* by the technique described in claim 8, you were able to build those very reliable *multilane transceivers* and that . . . both solved the long-term need and also enabled the commercial success of products that are based . . . on claim 8." (A243; A752(22:16-22).) This unrebutted testimony more than satisfies the "substantial evidence" standard, and the Court therefore should not disturb the jury's findings on secondary considerations. *See, e.g., Cordis Corp. v. Boston Sci. Corp.*, 658 F.3d 1347, 1357 (Fed. Cir. 2011).

**Second**, Emulex's assertion that the commercial success of Broadcom's practicing products must be due *solely* to the '150 patent is a misstatement of the



law. *See Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1273 (Fed. Cir. 1991) (“It is not necessary . . . that the patented invention be *solely* responsible for the commercial success, in order for this factor to be given weight appropriate to the evidence, along with other pertinent factors.” (emphasis added)). It is undisputed that the products embodying the ’150 patent have been extremely successful in the market. (*See* A326; A477; A752.) Moreover, contrary to Emulex’s claim that “[t]he trial record is simply devoid of any evidence showing that the claimed commercial success is attributable to the ‘inventive characteristics’ of the ’150 patent” (Emulex Br. 41), substantial evidence supported the jury’s finding of commercial success of Broadcom’s products due to the merits of the claimed invention. (*See, e.g.*, A752 (claimed invention met demand for chip that operated reliably at low cost and higher throughput resulting in commercial success); A477 (Broadcom uses claimed invention in many products even eleven years after it was patented).)

**Third**, Emulex’s suggestion that Broadcom did not present any evidence on “unsuccessful previous attempts” is incorrect. The undisputed evidence at trial established that others—including Dr. Le’s colleagues—tried and failed to develop a clock and data recovery circuit for use in a multi-lane product without success. (*See* A751 (“People had been trying, but they were unsuccessful doing it because of [] these underlying noise-coupling issues . . . .”); A473 (discussing problems

with Broadcom's prior BCM 5500 product).) As this Court has held, "the failure of others to provide a feasible solution to a long standing problem is probative of nonobviousness." *See Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1054 (Fed. Cir. 1988). Emulex cites no authority for its assertion that the district court incorrectly gave weight to this secondary consideration simply because some of the "others" who previously tried and failed were also Broadcom engineers. (Emulex Br. 41.)

**Fourth**, there was substantial evidence of acceptance by others of the claimed invention as shown by praise from others in the field. (*See* A477.) As the district court observed, the undisputed—and unobjected-to—testimonial evidence was that Dr. Le and his co-inventors published a peer-reviewed paper related to the invention of the '150 patent in the June 2004 IEEE Symposium on Circuits—"one of the top three circuit design conferences where designers [] present their chips to an audience of their peers." (A477.) Emulex finds error in the district court's decision to credit this evidence, because the paper itself was not received into evidence. (Emulex Br. 42.) But as the district court concluded, "[a]lthough the general topic of the paper is relevant, the precise contents of the paper are not"—thus, it need not be in evidence for this testimony to support the jury's finding of praise by others. (A244.)

*Finally*, Emulex’s argument that the long-felt, but unresolved, need for the invention of the ’150 patent—as identified by Dr. Stojanovic, and as found by the district court—had already been solved by the Pickering prior art is similarly without merit. As discussed above, Pickering and the ’150 patent solve two different problems, and Pickering did not disclose the data path of the ’150 patent.

#### **IV. THE DISTRICT COURT DID NOT ABUSE ITS DISCRETION BY ENJOINING EMULEX’S INFRINGING PRODUCTS SOLD IN DIRECT COMPETITION WITH BROADCOM.**

Because “abuse of discretion is a deferential standard of review,” *Titan Tire Corp. v. Case New Holland, Inc.*, 566 F.3d 1372, 1375 (Fed. Cir. 2009), this Court regularly affirms permanent injunctions as granted. *See, e.g., Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1332 (Fed. Cir. 2008) (explaining that even in “a close case,” the “abuse of discretion [standard] compels our decision to affirm the district court”). The few instances in which this Court has vacated or modified permanent injunctions under the abuse of discretion standard involve drastic errors—none of which Emulex has asserted here. *See Innogenetics, N.V., v. Abbott Laboratories*, 512 F.3d 1363, 1380-81 (Fed. Cir. 2008) (vacating permanent injunction because damages award specifically accounted for future sales); *i4i Ltd. P’ship v. Microsoft Corp.*, 589 F.3d 1246, 1279 (Fed. Cir. 2009) (modifying effective date of injunction because of lack of record evidence upon which the district court purported to rely); *see also Ecolab, Inc. v. FMC Corp.*, 569 F.3d

1335, 1352 (Fed. Cir. 2009) (vacating denial of permanent injunction because the court below “failed to consider any of the *eBay* factors and failed to make any factual findings regarding those factors”).

The district court’s decision here is thorough and well-reasoned, and the supposed factual errors to which Emulex points reflect only the district court’s resolution of contested issues, not any abuse of discretion. *See Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1311 (Fed. Cir. 2007) (affirming permanent injunction where “[t]he district court considered the detailed testimony on both sides before deciding to issue the injunction”).

**A. Broadcom Has Suffered and, in the Absence of an Injunction, Would Continue to Suffer, Irreparable Harm.**

**1. Broadcom and Emulex Are Direct Competitors.**

Injunctive relief is particularly apt and regularly granted where, as here, the patent owner and the patent infringer compete. *See, e.g., Robert Bosch LLC v. Pylon Manuf. Corp.*, 659 F.3d 1142, 1156 (Fed. Cir. 2011) (remanding with instructions to enter a permanent injunction against an infringing competitor). Emulex has conceded that Emulex and Broadcom “compete directly” and that Emulex poses a “substantial direct threat” to Broadcom in the 10GbE market. (A25134; A25142; *see also supra* at 8-9 (collecting statements on competition in 10GbE market).)

**2. Emulex Has Taken Market Share from Broadcom.**

{ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] }

{ [REDACTED] }

Emulex in fact admits that “Broadcom was losing market share in the 10Gbps Ethernet market to Emulex’s Ethernet products.” (Emulex Br. 54.)

### 3. The Parties' Competition for Design Wins Supports the Conclusion of Irreparable Harm.

As the district court concluded, “the incumbency effect compounds the structural ramification of a design win,” and competition for “design wins” lends itself to a finding of irreparable harm. (A16-18.) *See Broadcom*, 543 F.3d at 702 (injunction based in part on lost of design wins causing irreparable harm). There was ample evidence of competition for “design wins” before the district court.

For the most part, Broadcom and Emulex do not sell their competing 10GbE products to end users; rather, they seek business from a small group of “original equipment manufacturers” (“OEMs”) to design their 10GbE chips into servers, which the OEMs then sell to end users. (A2436.) In particular, Broadcom and Emulex compete fiercely for business from four “tier one” OEMs—Hewlett-Packard (“HP”), IBM, Dell, and Cisco—which collectively supply the majority of the market. (*Id.*; {REDACTED}.)

An agreement with a particular OEM to build a particular 10GbE chip into a particular line is known as a “design win.” (Emulex Br. 9-11; A2438.) Design wins are not simply sale-by-sale decisions; rather, they represent the culmination of a process that includes multiple stages and carries with it ramifications that can last for years. (*Id.*; {REDACTED}.) Design wins create familiarity and confidence that yields an incumbency effect, which can carry over from one design cycle to the next. (A2439-40; {REDACTED})

[REDACTED]

[REDACTED] } ) In the 10GbE market, end users tend to be risk-averse and conservative, so this incumbency effect is particularly strong. (A2440.)

**4. There Is a Nexus Between Emulex's Infringement and the Harm to Broadcom.**

**a) Using the '150 Technology Was Necessary to Emulex's Commercial Success.**

The invention of the '150 patent made chips with multiple "receive-lanes" commercially feasible, and that multiple receive lane feature is a necessary part of the commercial success of Emulex's infringing products. (*E.g.*, A752 (explaining that the technology of the '150 patent "enable[s] the commercial success" of 10GbE controller chips used in large-scale data centers).)

Emulex suggests now that Broadcom's proof of irreparable harm falls short because the '150 patent is "directed only to a small portion of one circuit of one chip." (Emulex Br. 56.) But Emulex ignores that both the jury and the district court were persuaded by Broadcom's evidence at trial of a nexus between the technology of the '150 patent and the commercial success of devices that incorporate it. (A243-44.) Moreover, there is no rule of law that the only patented technologies amenable to injunctive relief are those with which purchasers of embodying products are directly familiar. To the contrary, this Court has affirmed

injunctions relating to technologies—like that of the ’150 patent—which, even if not themselves well known to customers, “enable” or “can be useful” for important functionalities. *See, e.g., Broadcom*, 543 F.3d at 686 (“The relevant technology is currently found in so-called third-generation (‘3G’) baseband processor chips. Baseband processor chips enable a cell phone’s basic communication functions . . . .”); *Verizon*, 503 F.3d at 1299 (“These patents do not claim the invention of the internet telephone; rather the basic purpose of the . . . patents . . . is to provide a server for enhanced name translation, which can be useful in implementing an internet telephone but is not limited to that purpose.”).

The Court’s recent decision in *Apple, Inc. v. Samsung Elecs. Co. Ltd.*, 678 F.3d 1314 (Fed. Cir. 2012), neither requires nor suggests a different conclusion. As to the utility patent at issue in *Apple*, this Court explicitly disclaimed any requirement of evidence that individual customers knowingly base specific purchasing decisions on the claimed technology. *See id.*, at 1327 (“we conclude that the district court was correct to require a nexus between infringement of the patent and some market-based injury, be it as a result of consumer preference ***or some other kind of causal link***”) (emphasis added). Here, that causal link— that the technology of the ’150 patent “enable[s] the commercial success” of the 10GbE products incorporating it—was shown by undisputed evidence at trial. (A752.) Moreover, the *Apple* case involved a preliminary injunction on a limited record,



not a full trial supplemented by thirteen additional depositions. *See, e.g., Lerner Ger. GmbH v. Lerner Corp.*, 94 F.3d 1575, 1577 (Fed. Cir. 1996) (explaining that preliminary and permanent injunctions “are distinct forms of equitable relief that have different prerequisites and serve entirely different purposes”).

**b) That “FCoE” Was a Contributing Factor in Certain Emulex Design Wins Does Not Disprove Broadcom’s Claims of Irreparable Harm.**

Emulex also argues that Broadcom is not entitled to injunctive relief because OEMs awarded certain design wins to Emulex at least in part because Emulex was the first to market with so-called “Fibre Channel over Ethernet” or “FCoE” functionality. (Emulex Br. 56; A2440.) But this claim has no bearing on the injunctive relief analysis, for several reasons.

**First**, without the technology of the ’150 patent, Emulex’s products would not have been competitive with Broadcom’s in terms of the combination of cost, size, power consumption, and reliability—whether or not they had the additional “FCoE” feature. *See supra* § IV(A)(4)(a).

**Second**, Emulex assumes that OEMs would not have accepted Broadcom’s products as an alternative to Emulex’s because they lacked this “FCoE” capability. But this was a disputed issue before the district court, and substantial evidence supports a finding that Broadcom’s products without the “FCoE” feature competed directly with Emulex’s products with it. For example, § [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].}

*Third*, Emulex makes no suggestion as to what portion of the market share gains Emulex has achieved at Broadcom’s expense are accounted for by “FCoE”-driven decisions. In fact, “FCoE” occupies what remains a niche in the 10GbE market. ({[REDACTED]}; A25; *see also* Emulex Br. 7 (admitting that “FCoE has been implemented in only a small number of data centers”).)

*Fourth*, Broadcom’s latest products offer the competing “FCoE” feature. As the district court found (A15-16) {[REDACTED]}, Broadcom has achieved a 10GbE design win at Dell as well as FCoE certifications from EMC and NetApp. (A2437-38; {[REDACTED]}.) When Emulex asserts that Broadcom is not a viable alternative for FCoE because “no [Broadcom] replacement parts have been qualified” by OEMs (Emulex Br. 11), this is not because OEMs were *unable* to do so, but that they *chose* not to—presumably because they were using Emulex’s infringing technology.

**B. Money Damages are Inadequate.**

The district court concluded that “monetary damages would not be sufficient to compensate for the exclusionary effect of design competition wins garnered with

the benefit of infringing technology.” (A20.) Emulex does not appear to challenge this conclusion with respect to the parties’ competition in 10GbE. (Emulex Br. 54-55.) And in fact, the nature of design win-based competition favors injunctive relief precisely because it yields difficult-to-quantify benefits. *See, e.g., Broadcom*, 543 F.3d at 702-03.

### **C. The Balance of Hardships Favors Broadcom.**

The district court recognized that while “[l]ost market share, exclusion from design wins, and loss of incumbency benefits are all hardships which Broadcom will sustain without an injunction,” “Emulex cannot claim harm from loss of incumbency advantages predicated on infringement.” (A21-22.) This is especially true given Emulex’s conscious strategy of avoidance. Emulex’s CEO admitted at trial that—pursuant to a “conscious decision”—“not once” did Emulex ask its suppliers for schematics which would have allowed Emulex to investigate fully Broadcom’s allegations regarding Emulex’s infringement of the ’150 patent. (A527-28.) Nor did Emulex take steps to initiate a design-around. (A527.)

Emulex wrongly relies on alleged harm to third parties in the balance of hardship analysis. (Emulex Br. 59-62.) But “the balance considered is only between a plaintiff and a defendant, and thus the effect on customers [other third parties] is irrelevant under this prong of the injunction test.” *Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1330 (Fed. Cir. 2008). Emulex elected to “build a

business on a product found to infringe” and now “cannot be heard to complain [when] an injunction against continuing infringement destroys the business so elected.” *Windsurfing Int’l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986); *see also Bosch*, 659 F.3d at 1156 (“requiring Bosch to compete against its own patented invention . . . places a substantial hardship on Bosch”).

**D. The Scope of the Injunction Protects the Public Interest.**

**1. The District Court Carefully Crafted the Sunset Period To Balance Competing Interests.**

The district court’s Sunset Period was crafted to addresses the competing interests of the parties, the OEMs, and the public. (A5111.) Both Broadcom and Emulex suffer some harm as a result of the balance that the district court struck: the Sunset Period does not permit Emulex to continue unfettered infringement of Broadcom’s patents, nor does it provide Broadcom with immediate relief from its competitor’s infringement. And the district court expressly considered Emulex’s concern that some customer devices which were not sufficiently advanced prior to the commencement of the Sunset Period would be excluded from continuing sales. (A5078.) But the Sunset Period does allow Emulex to continue selling current products; in particular, customers whose devices had advanced to the point of both qualification by the OEM and the placement of production orders prior to the commencement of the Sunset Period are permitted to continue to purchase infringing products from Emulex. (A27.)

## 2. Emulex Overstates the Potential Harm From the Injunction to Customers and End Users.

In designing the Sunset Period, the district court expressly considered Emulex's allegations of harm to the public. (A26 ("[P]rotection of the public interest must figure in the analysis and the result."); A22 ("The [district c]ourt has balanced the right of Broadcom to not simply enjoy the benefits of its patents but to be free from competitive challenges using its own intellectual property . . . with the hardships which Emulex will sustain and the effects on the public . . .").) The Sunset Period takes issues of potential public harm into account; Emulex is therefore wrong to suggest that the district court somehow abused its discretion because Emulex's OEM customers and the end-user "public" will supposedly be irreparably harmed by the injunction. (Emulex Br. 59-62; A22-23 ("[T]here is no showing that an injunction would have any effect on . . . Tier One server manufacturers, Dell and Cisco"); A23 ("[T]here is no evidence before the [district c]ourt concerning the impact of an injunction on the availability of high-end servers generally in the market place.").)

*First*, Emulex offered *no* evidence from actual end users describing the disruptions the injunction will supposedly cause. Rather, Emulex relied on unsubstantiated hearsay in declarations from self-interested Emulex customers. (See Emulex Br. 60-61.) { [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

*Second*, Emulex's representations of the degree of potential harm to end users and its direct customers are exaggerated. For instance, { [REDACTED] } provide no basis to question the imposition of an injunction here. End users of 10GbE products tend to be risk-averse, purchasing well ahead of their needs and preferring to purchase servers and related products from the same supplier from one generation to the next. (A2440; { [REDACTED] }

[REDACTED]

{ [REDACTED] } Given these realities, end users faced with a delay in the availability of new products from a given supplier would not necessarily switch to a different supplier; instead, they would likely consider delaying their purchases.

### **3. The Scope of the Injunction Was Within the District Court's Discretion.**

None of Emulex's challenges to the scope of the injunction demonstrate any abuse of discretion.

**a) The District Court’s Sunset Criteria Are a Valid Exercise of Its Discretion.**

The terms of the Sunset Period effectively permit continued sales for any combination of “specific customer device” and infringing product that was already on the market as of October 12, 2011, and for other combinations that were close to general availability. (A27.) Thus the parties have agreed that {REDACTED} combinations of specific customer devices and infringing products are eligible for continuing sales during the Sunset Period, and are in the process of determining, through limited discovery, the eligibility of over {REDACTED} additional combinations asserted by Emulex and certain OEMs. ({REDACTED}; A5886-89.)

Nevertheless Emulex argues that this accommodation—about which the district court has held several hearings and taken multiple rounds of briefing—shows “a clear error of judgment.” (Emulex Br. 62.) Emulex argues that the district court instead should have permitted continued sales wherever an OEM had awarded a design win prior to the start of the Sunset Period.

Emulex does not suggest that the district court’s selection of product qualification and production orders as the Sunset Period criteria was “error” in the sense of reflecting some mistake. Nor could it, given the district court’s explicit recognition that “this not a perfect solution from the standpoint of Emulex customers” and that “sunk development costs would be one of the potential

casualties of attempting to strike a balance” between “the needs of Emulex customers with the protection of Broadcom’s patent rights.” (A28.)

The solution that Emulex proposed—tying sunset eligibility to “design wins” alone—is far *less* “perfect.” Rather, sunset eligibility tied to design wins would allow sales for programs that had never come to fruition or had only, on the eve of trial, begun design efforts, as the district court recognized. (A29 (“[I]t would seem particularly unfair to allow Emulex to go forward with an H-P development effort for the BE3 and Lancer which was initiated just before trial.”).) Such an arrangement would have had the perverse effect of rewarding Emulex for its “conscious decision” not to fully investigate whether or not its products infringe, as well as for its determination not to alert OEMs that its products were potentially at risk.

**b) The Duration of the Sunset Period Was Not an Abuse of Discretion.**

The Sunset Period for sales of products found to infringe the ’150 patent began on October 12, 2011. (A27.) This start date is the date of the JMOL order, and it reflects the point in time by which, the district court found, “a reasonably prudent firm accused of infringement would have either ceased infringement and/or begun design-around efforts to avoid infringement.” (A27.) Emulex complains that the sunset provision for the ’150 patent will expire in April 2013, “only a year from when the injunction went into effect”—but the relevant period



begins at the finding of infringement, not at the entry of the injunction. *See Broadcom*, 543 F.3d at 704 (finding no abuse of discretion where the sunset period dated to the jury verdict).

Furthermore, the district court correctly recognized that the record contained a wide range of time estimates relating to the product qualification and design process, and struck a balance in arriving at an eighteen-month Sunset Period. (A18 (considering “all the information before the [district c]ourt,” including testimony concerning a shorter four-to-six-month qualification period for “FCoE” at Dell); A23 (acknowledging that “replacement or redesign of an infringing chip is a complicated process”).) Several such estimates were in the fourteen-to-eighteen-month range. (A23-27.) On this record the district court’s selection of an eighteen-month Sunset Period was reasonable. *See Broadcom*, 543 F.3d at 704 (no abuse of discretion in ordering a twenty-month sunset period); *see also Verizon*, 503 F.3d at 1311 (no abuse of discretion where “[t]he district court considered the detailed testimony on both sides”).

**c) The District Court Did Not Abuse Its Discretion by Excluding Distributors from the Sunset Period.**

Emulex also argues that the exclusion of distributors (as opposed to OEMs) from the coverage of the Sunset Period constitutes an abuse of discretion. (Emulex Br. 62.) But it was Emulex’s refusal (or inability) to address the district court’s

concerns that permitting sales to distributors would facilitate wholesale circumvention of the injunction that required the exclusion of distributors.

In fact, the district court specifically suggested that Emulex propose a mechanism to support sales through distributors for existing customers while safeguarding against circumvention of the injunction generally:

I'm not prepared to say that I wouldn't allow some sunset sales to distributors, but I think that the documentation has to come forward in a way that assures Broadcom and the [district c]ourt that sales through distributors isn't simply a conduit to avoid the injunction. . . . It may be that there are legitimate sales [to distributors] to support existing customers out there who would be in place well before the sunset, but there is also the way it's presently presented the potential for diversion. . . . So I need to see some very specific mechanics as to how this might work.

(A5684-85.) Emulex's counsel responded unequivocally: "We will provide that, Your Honor." (A5685.)

But Emulex did not. Instead, Emulex proposed a "quota system" for sales to distributors. The district court rejected Emulex's "quota" proposal, reasoning that although "a quota might be administratively manageable, it would not afford Broadcom the protection to which it is entitled." (A5888.) But even in doing so, the district court fashioned "a limited exception for sales through a distributor occasioned by the emergency needs of an end user affecting health of the public . . . , public safety . . . , and governmental entities engaged in national defense." (A5888-89.) Given Emulex's failure to provide information the district court

requested, the district court's decision to exclude most (but not all) sales to distributors was a reasonable exercise of discretion.

### **CONCLUSION**

For the reasons set forth above, Broadcom respectfully requests that this Court affirm the judgment of the district court.

Respectfully submitted,

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Dated: July 26, 2012

## CERTIFICATE OF SERVICE

I hereby certify that on this 26th day of July, 2012, the foregoing  
*Nonconfidential Brief of Plaintiff-Appellee Broadcom Corporation* was filed with  
the U.S. Court of Appeals for the Federal Circuit by means of the Court's CM/ECF  
system. I further certify that on this 26th day of July, 2012, I caused two copies of  
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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME  
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Counsel for Plaintiff-Appellee Broadcom Corporation hereby certifies that:

1. The brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B)(i) because exclusive of the exempted portions it contains 13,697 words as counted by the word processing program used to prepare the brief; and

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